

was made, some time ago, between the Secretary of Agriculture and the Secretary of the Smithsonian Institution, by which the botanical collections of the Department of Agriculture and the botanical collections of the Smithsonian Institution in the National Museum were practically united to constitute the National Herbarium, and were placed under the care of the botanist of the Department of Agriculture. There is no present transfer of the herbarium of this department, but whenever the Smithsonian Institution secures a new fire-proof building, special provision will be made for bringing the two collections together.

The appropriation for herbarium work has been increased and valuable collections of plants are now being made in various parts of the country. We hope in time to make the herbarium worthy of the name of National. At the same time we hope to form such relations with the agricultural colleges of the country as will be for mutual benefit. We hope also, through exchanges, to enlarge our representation of foreign plants. We shall be glad of the aid of botanists throughout the country in the way of donations or exchanges of desirable plants, especially of those of distant or unexplored sections.

GEO. VASEY.

Washington, D. C.

NOTES AND NEWS.

GEO. R. VASEY is collecting in E. Washington Terr. for the Department of Agriculture.

THIS YEAR is the centennial of the introduction of the chrysanthemum into Europe and of the dahlia into England.

AN ENDEAVOR is being made to establish a fund for the promotion of botanical research in memory of the late Dr. Leitgeb of Graz.

A BIOGRAPHICAL sketch of the late Ernst Rudolph von Trautvetter, by F. G. von Herder, has just been published in the *Botanisches Centralblatt*.

A SPECIMEN of Podophyllum has been received from John M. Snider of Dayton, Ohio, which consists of a flowering stem without leaves or leaf scars, and also has the stamens united.

MR. J. REYNOLDS VAIZEY, of Cambridge University, England, a young botanist of much promise, is dead. Some of his best writings appeared in the first volume of the *Annals of Botany*.

A SHORT ARTICLE on potato scab, giving a resumé of present known facts, is contributed by Prof. Jas. E. Humphrey to the sixth Annual Report of State Agric. Expr. Station at Amherst, Mass.

DR. ANTOINE MOUGEOT, a well-known cryptogamic botanist of France, died February 20, at 74 years of age. He was one of the charter members and the first secretary of the *Société Mycologique de France*.

DR. C. F. MILLSPAUGH is publishing a series of articles on our native medicinal plants in the *Homœopathic Recorder*. The recent numbers contain plates and descriptions of *Epiphegus Virginiana* and *Viburnum Opulus*.

DR. SERENO WATSON was elected a member of the National Academy of Sciences at the recent meeting in Washington. The number of members is now one hundred, the limit fixed by the laws of the Academy, although never before attained.

DR. N. L. BRITTON (*Torr. Bull.* May, 1889) has published a preliminary note on the N. American species of *Tissa* Adans., or the sand spur-reys, which have heretofore appeared variously as *Spergularia*, *Lepigonum*, etc. Ten species are enumerated.

THE ARTICLE by P. H. Dudley on the fungi destructive to wood, printed with the botanist's report in the 41st annual report of the New York Museum, has been translated into French, and appears complete with the illustrations in the *Revue Mycologique* for April.

PROFESSOR THOMAS MEEHAN has just distributed his fourth "Contribution to the life histories of plants." It contains notes on secund inflorescence, *Pinus pungens* and its allies, *Corydalis flavula*, dimorphism in *Polygoneæ*, nature and office of stipules, and *Euonymus Japonica*.

THE SOCIÉTÉ de Physique et d' Histoire Naturelle of Geneva has offered a prize of 500 francs for the best monograph of a genus or family. The manuscript, which must be written in Latin, German, French or Italian, must be sent to the president by the 1st of October of the present year.

PEACH and apricot stones (endocarp and seed) are used in California for fuel, the former bringing \$6 a ton and the latter somewhat less. They were formerly waste products of the great fruit-preserving establishments. Peach stones are considered equal to the best California coal for domestic use.

A BIBLIOGRAPHICAL DIRECTORY of American agricultural scientists has been issued by Prof. C. S. Plumb. It contains over two hundred names chiefly those connected with experiment stations. The work is carefully compiled and neatly printed, and will be of interest and service to those interested in the scientific progress of agricultural knowledge.

THE SACRED LOTUS, *Nelumbium speciosum*, has become established in a pond in New Jersey, and proves hardy, although the surface of the water is frozen over during the winter. The history of its planting, by E. D. Sturtevant, is given in *Garden and Forest* for April 10, with a fine photo-engraving of the spot showing hundreds of open flowers.

THE WIDE FIELD that still remains for research among the mosses of North America is indicated by a comparison between a recent catalogue of the moss-flora of the neighborhood of Geneva, Switzerland, and the known species of this country. Guinet's catalogue contains 465 species and 114 varieties, while our total of recorded species does not much exceed 1,000.

ZOPF HAS discovered a new species of *Saccharomyces* which he has named after the most distinguished student of this group *S. Hansenii*. This yeast, instead of producing alcoholic fermentation, causes the formation of oxalic acid from such various substances as grape, cane and milk sugars, galactose, maltose, dulcitol, glycerine and mannite. It forms ascospores after the fashion of *S. cerevisiæ*, but one or two only.

FOR A LONG TIME attempts have been made to place the control of the Bartram botanic garden of Philadelphia in such hands that its proper protection and care should be assured for all time. It is a precious legacy to botanists and plant lovers, and of special historic interest. On March 7 the Philadelphia Select Council provided for its purchase, and will soon place it under the same management as the other city parks.

THE EXAMINATION of seventeen evergreen and deciduous trees [by L. A. Gulbe] gave the following general result: In spring the activity of the cambium begins in the twigs, passes thence into the stem, then into the thick and lastly into the smaller branches of the root, four to five weeks after its beginning in the twigs. Towards autumn its activity disappears in the same order, but the period of cessation covers two months. In the second half of October it has completely ceased in the roots.—*Bot. Centralblatt*, xxxviii, 487.

A BOTANICAL CONGRESS is to be held in Paris during next August, to which the Botanical Society of France invites foreign botanists. Those who expect to attend should send their names to M. P. Maury, Secretary of the Organizing Committee, 84 Rue de Grenelle, Paris, and obtain further information. Two subjects are especially proposed for consideration: Methods of studying geographical distribution of plants through coöperative action of scientific bodies, and Value of anatomical characters in classification. It is to be hoped that a number of American botanists may be present.

THE NEW French journal, *Revue Général de Botanique*, begins after a most vigorous and promising fashion. The articles which have appeared in the first four numbers are all of importance and by authors of the highest rank. Among the names are those of Rosenvinge, Guignard, Bonnier (the editor), Constantin, Leclerc du Sablon and Jumelle. The reviews of recent works in various departments are an extremely good feature, and very much more readable than the abstracts to which some journals devote themselves. The *Revue* is published by Paul Klincksieck, Rue des Ecoles, 52, Paris.

MRS. E. G. BRITTON begins in the April number of the *Bulletin* of the Torrey Botanical Club a series of papers with the title, Contributions to American Bryology. The first paper is an enumeration of the mosses collected in Kootenai county, Idaho, by Mr. Leiberg. One new species, *Hypnum* (*Thamnium*) *Leibergii*, is described, and also the fruit of *Grimmia torquata*. In February last, I also had the pleasure of discovering the fruit on specimens of this species sent me by Mr. Leiberg. In the material which came under my observation, the capsules were not infrequently slightly longer than stated by Mrs. Britton (0.8—1.2 x 0.6mm. were my measurements) and a well-developed, persistent annulus, of three (rarely four) rows of cells was found. Mrs. Britton says, "Annulus none."—C. R. B.

AT THE MEETING of the Botanical Society of Munich, held on March 11, R. Hegler proposed the use of thallin sulphate as a new reagent for lignified tissues. All the previously used reagents, phloroglucin, and the salts of anilin, naphthalidin and toluidin are open to the objection that the reactions are transient and involve the use of an acid which is troublesome and requires considerable care. Thallin sulphate, however, obviates the use of an acid and the color it imparts to lignified walls, a deep orange yellow, is permanent. Its action is wholly upon vanillin. It should be used in a concentrated solution in dilute alcohol or in water. The solution should be protected from the light and is better prepared in small quantities as needed. Exposure to light causes the solution to become rose red, when it will impart this color to the cellulose and suberized walls, though the lignin reaction is not interfered with. The longer the action on sections the intenser the color.

SOME CONCLUSIONS of Belajeff as to the constitution of the antherozoids of ferns and equiseta, based upon researches in December, 1888, but just published¹ differ very materially from those of Guignard,² though the two observers seem to have seen about the same things. Belajeff says: "In all vascular cryptogams the body of the spermatozoid consists of a colorless band, in which a chromatin-filament or body is enclosed. The development shows that the achromatic band arises from the plasma, the chromatin body from the nucleus of the mother-cell." Guignard: "In the ferns it is again the nucleus alone that is transformed directly into a spiral band; the cilia arise from a peripheral layer, relatively thick, of hyaline protoplasm. * * * The morphological transformation of the nucleus is accompanied by internal modifications which render the spiral band homogeneous and equally chromatic, except in the posterior part where it is colored a little less by the reaction of the nuclein. The very delicate envelope of the body is not formed directly by the protoplasm."

M. GASTON BONNIER has, to our mind at least, completely settled the vexed question of the nature of lichens, by his recent experiments in the synthesis of these organisms. In the first part of the ninth volume of the *Annales des sciences naturelles* (botanique) he explains fully his methods of culture and the results attained.³ The methods seem as rigid as possible. Stahl's researches in this direction, while of the utmost significance, were open to objection in that they did not exclude sources of possible error, because the cultures were exposed to ordinary air and the sowings were made on unsterilized media. Bonnier has avoided this source of error by carefully sterilizing all his media, culture flasks, implements, etc. Two methods of culture were used, flasks or tubes, and cells. In both cases arrangements were made for the renewal of the air either by the natural currents due to changes of temperature or by artificial means. In both cases germs were excluded by causing the air to pass through cotton plugs. Algæ of known species were collected (their purity demonstrated by microscopic examination) and sowed on pieces of sterilized bark, rocks, etc. Then spores of lichens were sown on the same substratum. Except in one instance, fructifications were obtained within two years. The following is a list of the species grown in this way. In appearance and structure they were like the wild forms: With *Protococcus*, *Physcia parietina*, *P. stellaris*, *Parmelia Acetabulum*; with *Pleurococcus*, *Lecanora sophodes*, *L. subfusca*, *L. coilocarpa*, *L. cæsiio-rufa*; with *Trentepohlia*, *Opegrapha vulgata*, *Graphis elegans*, ?*Verrucaria muralis*.

¹ *Berichte d. deutsch. bot. Gesells.* vii. 122.

² See this journal, ante, p. 137, and *Revue gén. de Bot.* i. 71.

³ Brief reference was made to some of Bonnier's results in this journal, xii. 202. His experiments were begun in 1882 and completed last year.